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ABSTRACT

Utilization of ice and exercise conjunctively decreases recovery time of muscle tendon injury considerably. In the healing process, collagen (a major element of scar formation) is laid down. If heat and rest are used as treatment, healing takes place; however, collagen is laid down in a haphazard arrangement increasing the likelihood of reinjury. The use of ice and exercise, on the other hand, acts on collagen and the muscle in ways that heal the injury faster with less chance for reinjury. Ice may be used with either an ice bag, an ice massage, or an ice water submergence. For the proper exercise to use, a qualified specialist should be consulted. (DC)

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ICE & EXERCISE FOR INJURY MANAGEMENT

QUESTION: I am a 20-30 mile per week distance runner with a specific problem. I have pain and tenderness along the outside of my right ankle and lower leg. It was diagnosed as peroneal tendonitis. My doctor told me to rest for two weeks and soak it in hot water. Is there anything I can do to recover faster?

ANSWER: Utilization of ice and exercise conjunctively would decrease your recovery time considerably. In the sub-acute stage of muscle tendon injury (where there is pain with rest or pain in the end range of movement) there is always some degree of microscopic bleeding and tearing of tissue. In the healing process, collagen, a major constituent of scar formation is laid down. Under normal conditions, collagen exhibits elasticity. However, with injury, collagen exhibits viscous properties leading to plastic deformation. When a muscle is loaded, collagen scar will deform, but when unloaded it will not return to its original length. This poses a problem for the athlete because scar tissue, which has a poor blood supply, is stretched out and if you run at this point, you will experience a dull aching pain in the injured area due to increased lactic acid production which irritates nerve endings.

With heat and rest as your doctor prescribed, <u>healing</u> will take place. However, collagen is laid down in a haphazard arrangement when no stress is imposed on a muscle. Thus, scar tissue forms abnormally and there is a greater chance for reinjury. Heat and exercise on the other hand causes collagen to be stretched out due to increased viscosity and plastic deformation.

The use of ice with exercise performs four functions. First, it cools down collagen so elasticity is retained when stress is imposed with muscle contractions. Secondly, it allows you to exercise the muscle, causing collagen formation to line up parallel with muscle fibers. Thirdly, ice is also effective in decreasing pain since it slows down nerve conduction of pain fibers in injured tissue. Finally, ice and exercise increases tissue metabolism greater than heat alone. Obviously, the use of ice with exercise will heal your injury faster with less chance for reinjury.

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One may utilize ice in the following ways:

1) Ice Bag - Fill a bag of ice and surround the area of pain and swelling for approximately 20 minutes.
2) Ice Massage - Simply rub the pained area with ice for approximately 7-10 minutes.
3) Ice Water Submergence - The water should be 55-65°F. Submerge the injured area into a cold bath for approximately 20 minutes to achieve the best results.

The type of exercise performed in conjunction with ice should be instructed by a qualified physician, physical therapist, trainer or physical educator.

For information regarding exercise programs for injury rehabilitation, please contact the Institute for Medicine in Sports, P.O. Box 2621, Hamilton Square, NJ 08690 or phone (609) 586-4277. If you wish to make an appointment for physicians' clinic, sports rehab/ physical therapy, cardio pulmonary rehab or consultation regarding conditioning, nutrition and/or prevention, call (609) 586-7900, X6677.

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